Summary of Regional Forum on Sustainable Infrastructure
With Emphasis on Sustainable Streets and Streetscapes
Thursday May 13, 2004
10:00 – 4:30
Key Tower 4050
700 5th Avenue
Seattle, WA

Overview

- Each City has a sustainability office ranging from 3 FTEs in Vancouver to 28 FTEs in Portland **(see matrix comparing three cities)**
- Each City has general policies related to sustainable development and internal committees to coordinated activities.
- Good success with the design and construction of sustainable buildings in all three cities
- Sustainable infrastructure initiatives are relatively new including sustainable streets and streetscapes
- Many challenges in the 21st Century related to reinventing streets and creating healthier and more livable cities **(see presentation by Mark Holland)**
- Seattle, Portland, and Vancouver are North American leaders in exploring innovative approaches to sustainable infrastructure and sustainable streets. Europe is ahead of North America in designing sustainable infrastructure and sustainable streets **(see presentation by Gabriel Scheer and report by Gabriel Scheer)**

Design of Sustainable Streets (see below for detailed comments from breakout groups)

- Need to address multiple objectives in street design (e.g., trees, pedestrians, bikes, safety, transit, lightening, garbage, fire trucks, stormwater, business needs)
- Key in developing greener streets is going from "standards/uniformity" oriented thinking to "interest-based/local innovation" thinking
- Master planning is a key mechanism to get green streets, but their design and installation has been designed in phases.
- Green streets aren't all the same – they need to be designed to fit the feel of the area (e.g., urbanized = structured approach, versus a more softer area for lower density residential such as SeaStreets.)
- Green streets can cause some unintended consequences (e.g., trees can block signs or create safety concerns)
- Writing specifications and finding skilled contractors is a challenge. Need training
- Need for research on what works and does not work (e.g., pavers, stormwater techniques) including monitoring as part of work

Maintenance

- Street design needs to incorporate maintenance concerns
- Lack of money is a big problem. Sustainable streets can require increased maintenance and maintenance funding is already inadequate
- Maintenance responsibilities of homeowners and businesses need to be clearly defined.
- All three are testing porous pavement and need to monitor and share results
- Need to determine who will be responsible for departments vs. citywide budget vs. neighborhood.

Politics and Public Support for Sustainable Streets

- Most successful projects have had substantial community input and many times driven by communities.
- Important to have effective public process
- Elected officials have generally been supportive of green projects. Green projects are generally viewed by constituents as positive and hence supported by elected officials.
- It is important have a local champion to promote greener streets and then partner with the City to deliver them
- Need to address costs and show how new street design is meeting needs in a cost effective way.

Barriers/incentives

- Definition of what is a green street/sustainable street has slowed down the process.
- Inadequate ROW has proven difficult because of the multiple objectives that the ROW needs to accommodate.
- First costs can be challenging when dealing with tight budgets.
- Risk aversion from both the public and private sectors to doing something new.
- Need to make business case that sustainable streets make sense.
- Must have flexibility in design.
- Developers are asking for incentives to design and construct green streets

Fostering Innovation

- Design charettes are a good way to incorporate sustainable design principles into projects.
- It is important to be clear on the broad goals and objectives.
- Must work closer with private sector and provide training opportunities, materials etc to raise level of understanding of sustainable streets.

Summary of Comments on Forum

- Great networking opportunity; well organized
- Next meeting needs more detail, specific projects, and smaller discussion groups
- Need to create some way to share information on projects and research (website, list serve)

Next Steps/Further Collaboration

- Provide summary of Forum along with contact lists and presentation to participants
- Create a website that can be accessed by three cities that includes information from Forum and links to other cities programs.
- Develop a common method to monitor projects
- Create opportunities for face-to-face interactions
- Ask APWA to sponsor a program on sustainable streets at their conference
- Develop standard design guidelines

Next Forum:

Detailed Comments on Regional Forum on Sustainable Infrastructure
With Emphasis on Sustainable Streets and Streetscapes

12:30 – 2:00 Technical breakout groups with report out

Session 1a: Overall Design of Sustainable Streets in Urban Areas (Mike Cox, Seattle, Facilitator)

1.What are key issues for a longer-term vision of what streets need to be in a sustainable City, with an eye to a 50-100 timeline (include future directions for utilities – trends, requirements, etc)?

- Maintenance that needs to be easy to access, cost effective, long life, low cost replacement materials
- Must accommodate utilities
- Must develop street Standards that are understandable and easy to implement
- Zoning is important
- Competing needs in public ROW must be balanced such as ADA, transportation, utilities, and drainage.
- The process for getting projects in the ground is important to have public buy in

2.What are high priority economic, utility, social and environmental objectives for our streets – and their correlative benefits?

- Environmental
  - Minimal impact on runoff, pollution, tree canopy
  - Biodiversity (maintain high level)
  - Maintain salmon habitat
  - Human health/human habitat important
  - Equity
  - Energy efficiency and reduction in materials use
- Economic
  - Maximize investments. Multiple objectives must be met
  - Cost effective to sell to developers and City officials
  - Reduce/minimize O and M. In some cases O/M may be higher and must accept this
  - Cost per user needs to be examined. May not make sense in short-term because high cost per user, but over time may make sense such as bike lanes
  - Must have forward thinking to get away from more roads in the solution; if you build the roads they will fill up
- Social
  - Aesthetics very important
  - Engage with community and more likely to take care of street
  - Connect with community via good design
  - Reward people for good work (provide awards)
  - Partnerships with other department, agencies, private sector
  - More accountability

3.What are some key characteristics of more sustainable streets (typology referenced)?

- Flexibility critical to project success
- Must take into consideration aging population (wider streets?)
- Street trees
- Lightening
- Aesthetics

- Must design for multiple objectives
- Minimize impervious surfaces (maybe physical and geographic constraints)
- Ped/bike only streets
- Safety

4.What methods have worked in the past to address multiple objectives (social, environmental, economic, etc) in street design?
- Portland (several pilot projects on pervious pavers)
- Ran out of time

5.What are the areas for further collaboration among the three cities?
- Ran out of time

Session 1b: Overall Design of Sustainable Streets in Urban Areas (Mark Holland, Vancouver, Facilitator)

1.What are key issues for a longer-term vision of what streets need to be in a sustainable City, with an eye to a 50-100 timeline (include future directions for utilities – trends, requirements, etc)?
- Street trees
- Legal constraints
- Maintenance
- Permeability
- Costs
- Street design standards
- Longevity / durability
- Limited R.O.W.
- System compatibility
- New way to think about streets
- Unintended community impacts
- Inter-dept. coordination
- Private sector developer

2. OVERALL DESIGN

- Pedestrian – oriented qualities and experiences are key to a greener street. For instance, it isn't wise to have narrow sidewalks & too many large plants.
- People can walk on the streets as opposed to sidewalks in quieter areas.
- It's more than just "green" functions that have to be considered – we have to address all functions including the usual issues such as garbage & fire trucks. Fire trucks size can often be an issue - Fire underwriters are a concern (policy & cost implications)
- Cost is always an issue.

The key method in developing greener streets is going from "standards" oriented thinking to "interest-based" thinking
- A key issue is street standards and uniformity vs. local innovation = legal challenges exist in this area – cases of litigation use state standards as rule.
- Streets have overlapping & multiple jurisdictions involved
- All involved have to endorse objectives and then address issues together.
- Making progress on changes involves forming joint jurisdictional programs to collectively address changes in standards

- We need to both design for users, and feel free to ask users to slightly adjust their behavior to existing design, including adding new costs to some users.
- Rolling stock (vehicles) can change over time relatively easily, but privately owned in-ground infrastructure is more difficult to change.
- Greener streets can have some unforeseen economic impacts to businesses – e.g.: trees can block signs and cause protest from business owners.
- Green streets aren't all the same – they need to be designed appropriately to fit the "feel" of an area – e.g.: urbanized = structured appearance, versus a more softer area for lower density residential such as the Sea Streets.
- There is a strong need to address multiple objectives in street design - "Livable" streets address multiple objectives - i.e.: "green streets" means stormwater & there is much more.
- The impact of sustainable streets can affect the perspective of urban growth boundary discussions as the community becomes greener vs. a typical perception of urbanity being a sea of asphalt.
- We all are "running into "techie" problems in all our projects."
- Broadview Greenway was an interesting gentle hybrid of alternative street designs - half shoulder / half sidewalk design with 2" curb height that serves both as a sidewalk and vehicle wheels can drive on it relatively easy when necessary.
- Writing specifications and finding skilled contractors can be a challenge that sometimes requires training for contractors. Can the 3 cities work together to learn about this better?
- Bonding for dealing with risk on alternative designs is an issue
- All 3 cascadia cities share very similar problems & each is working on aspects – we need to share our successes and failures.
- We need a central WEBSITE portal where we can share our projects and information.
- Research can be costly and the cascadia cities could form a partnership with cascadia Universities to research green street issues.
- We need solid science on our designs – it is important that they are a success.
- We need to identify key projects and do before / after studies to track performance and maximize learning – many good results from this (what works / doesn't work / is risky, etc…) maybe FIFE SITE in PIERCE county could be such a project.
- We need to find ways to get capital for design, construction and maintenance. The cascadia cities could work with state and federal funding agencies – inc. EPA to apply for funding for studies and pilot projects.
- Can we link this forum to others that may occur, or to other groups doing similar work?
- "Pilot projects" need to be measured. We should publish successes & failures to build credibility and learning over time. For instance, Portland Siskiyou Street has been a retrofit success.
- How can we maximize inter agency cooperation? PDAW oversees inter system coordination and meetings with stakeholders
- Info the cascadia cities can share
    - Portland skinny streets program is on "metro's" website
    - Portland has an urban forestry plan
    - Vancouver's Country Lanes
    - Seattle's Urban Forestry Group – Plan underway - Shane Dewalt L-Arch
    - Portland has extensive experience with sandset pavers & maintenance Vancouver Country lanes has similar experience. Seattle is using these in Westlake Park.
    - North Park block (Portland) = street runoff goes into park & parking lot
- Training of city staff is important – in things like soils / materials etc… this is key to long term experience

- Smaller "dwarf" street tree and trees that don't cause problems are now available that cause less disruption to sidewalks.
- Green streets need to design for harmony between systems including - lighting, water, trees, etc
- Wider streets are easier to retrofit than narrower ones. Narrower street corridors limit other objectives sometimes
- Street upgrades need to fit with green drainage systems etc…. Typically we have to upgrade all deficient systems at the same time, and that can raise costs.

WHAT'S NEXT?

- Cities are now working on adding streetcars to their transit networks.
- We will be retrofitting major streets into blvds with infiltration trenches – e.g.: Gresham
- Seattle now has a mandate to be the most bike-friendly city
- Seattle is also pushing multimodal uses of streets aggressively. Its downtown population is predicted to double in 20 years. South Lake Union project is premised on accommodating this growth in a more sustainable manner.
- Safety standards are federal and this is a key issue – it is a legal issue & built on legal precedents and APA standards. Portland has found these less of a concern than Seattle has in practice.
- Smaller towns have much larger challenges in dealing with federal standards and the costs of alternative street design – it often requires specials grants and the relative impact of their legal exposure is significant.
- Managing runoff with flows that move between private and public land can cause challenges with liability – typically precedents have been public-to-public land.
- How do we deal with our citizens concerns about new issues on greener streets?
- Master planning is a key mechanism to get green streets but their design and installation has been designed to be phased in. Design guidelines in a master plan can't be too specific but must give guidance. The location of the curb line is key in these designs.

Session 2: Maintenance of sustainable streets in urban areas (Matt Emlen, Portland, Facilitator)

1. What are the biggest maintenance challenges you face with sustainable streets?

- The big problem is lack of money for maintenance.
  - Sustainable streetscapes require increased maintenance and maintenance funding is already inadequate.
  - The will to build is greater than the will to maintain.
  - EPA should require maintenance funding for sustainable street designs.
- Street design needs to incorporate maintenance concerns.
  - Maintenance people, including field staff need to be part of the design team
  - Maintenance issues need to be considered early in the design process.
  - Seattle put designers in charge of maintenance crews.
  - Crews need to know design intent. This helps them know whether they sediment should be removed or left in place.
- The maintenance responsibilities of homeowners need to be clearly defined.
  - Individual agreements will be hard to enforce over time – responsibility needs to be in code
  - Maintenance that has a general benefit should be included in the tax base.
  - Vancouver has a program for community members to adopt areas and maintain them.

2. What are you learning about?

1. Durability and maintenance issues of sustainable street designs and materials
2. The equipment required to maintain sustainable streets

- Porous pavement
  - Testing is being done in Portland, King County and Vancouver. Porous pavement is being tested on shoulders and on roads.
  - Vancouver owns their asphalt plant. It is using porous pavement in patches.
  - People wondered what happens in the event of hazardous materials spills. In Vancouver, it's not an issue because the porous pavement is just a surface treatment.
  - Regular street cleaning equipment is used for maintenance. Special vacuum systems have not been seen as necessary.
- Sidewalks and trees:
  - The cities differ in property owner responsibilities for maintaining street trees and sidewalks.
  - Portland moves sidewalks to preserve large trees.

3. Ideas for further collaboration among the three cities

- Exchange information on funding:
  - Bancroft loans (Portland example)
  - Requirement to approve maintenance funding when construction is approved (Vancouver example)
  - Liens (Portland example)
  - Ways to apply new funding sources to maintenance of sustainable streets; e.g. sewer rate funds
- Establish a website.
- Continue opportunities for face-to-face interaction – and get out together to look at projects in the field.
- Create an information link with APWA – ask them to sponsor a program on sustainable streets at their conference.
- Share the written agreements that Seattle establishes with property owners adjacent to SEA streets.
- Look at how maintenance of regular streets can have environmental benefit: e.g. street sweeping.

2:15 – 3:45 Implementation breakout groups with report out

Session 1: Politics and Public Support for Alternative Streets (Mark Holland, Vancouver, Facilitator)

- What has been successful
- Public responses
- Communications strategies
- Internal (City) politics
- How to leverage successes further

SUCCESSES

- Vancouver's projects have been largely driven by community – e.g.: residents approaching city staff and asking for greener alternatives – e.g.: put in soil instead of concrete and negative reaction to street tree removal.

- Portland's residents have been supportive although retrofits can be sensitive. Residents wanted the swales in the Siskyou project.
- Residences sometimes confer amongst themselves and approach the City and ask can we redevelop our street differently and more sustainable = this process can often occur when the City is upgrading a road.
- Portland's "friends of trees" have been effective in getting increases in the planting of street trees.
- An effective process to manage public requests and ideas is important
- Seattle has had to address water quality issues and flooding in some areas. This led to a rethinking of street design in a more sustainable way. This then led to a successful project and community buy-in. Now the city is looking for lower cost approaches. New urbanist advocates are pushing it now and the development industry is participating, as they see it making the permit process easier with increased community buy-in.
- Inter-community competition spurs action as well within some neighborhoods - a "me too" approach.

MAYORS / POLITICIANS CONSIDERATIONS

- Portland Council has been quite supportive – they are interested in supporting redeveloping / upgrading areas and interested in functional benefits of greener streets. Some councilors are mixed on it – green streets need to have a "constituency" – in an economic downturn, politicians focus mostly on jobs / economy.
- Politicians always want to be associated with the "right things". In some cases, green streets can be cheaper. Constituents also like benefits of green streets – particularly in denser areas. Streets are peoples "front yards" and making them nicer builds support. They are especially good when there are no simple regular "pipe" solutions – green streets then can be seen as the best option.
- Greener streets need to become associated with jobs, development, better economics etc to gain increased political support.
- Vancouver Council is big on all things green right now.
- Federal regulations drive discussions and directions for local councils in Seattle and Portland to a degree – controls on impervious area and impacts to receiving water bodies.
- Volunteerism should be used more often for maintenance - build constituency and community enthusiasm. However, volunteers can only go so far and there is a limited group to draw on and they all require management.

COUNCIL / CIVIC SERVICE ISSUES

- A City's bureaucracy is a stabilizing force and if moves in a progressive direction, the momentum lasts a long time.
- The perspectives of leadership in senior management are key.
  - Vancouver bureaucracy strong and integrated and good discussions occur and innovation can be relatively easily pursued.
  - Portland's commissioner / bureaucrat partnership can be powerful but have to manage relationships with other bureaus
  - Seattle's strong mayor is key – the environmental agenda is central.
- Council tends to back staff in neighborhood battles – as long as stories stay good
- We have noticed that alternative transportation expenditures can come under fire when economic development highest priority.
- The sources of funds dedicated to greener streets is key as the expectations associated with the source defines the discussion around how it can be allocated and may make it more or less

political.

COMMUNICATIONS

- It is important to get a local champion to promote greener streets and then partner with City to deliver them.
- Seattle utility did extensive communications around its green initiatives because it has a high profile public image that needs to be good – including hiring consultants. It has been very successful so far.
- Portland & Seattle – must deal with stormwater in many cases due to federal water management regulations and the cost of compliance is a key issue that supports alternative street design. Conventional pipe systems are not free – comparing costs of the alternative streets to regular costs is important.
- Portland has a 500 ft^2 trigger for water quality planning (Expectations and Standards).
- Portland also has a $25,000 development cost charge for street trees.
- Life cycle costing benefits support greener streets where these costing methods can be used.
- Communications are different to internal and external audiences
- Key issues to address include how it will it be taken care of and who pays - City wide view vs. departmental budgets.
- The design process and how to address costs – can address early or later in design after everybody is engaged– including the public. When addressing costs, we need to clearly show how new street design is meeting needs in cost effective way.
- 2 Levels – address key stakeholders and then deal with the public.
- The future of greener streets includes a mandate to find lower costs solutions to green street design.

Session 2: Barriers/benefits/incentives for sustainable streets (Mike Cox, Seattle, Facilitator)

1.What are the major barriers to the construction of sustainable streets?

- What is a green street/sustainable street? Maybe better to determine what is not a green street or establish principles and not try to define.
- Public support/cultural issues. Need to deal with specific issues with different ethnic groups
- Inadequate ROW
- Existing utilities in some cases they cannot be moved
- Integrate multiple functions of streets (e.g., ADA, driveways, trees, etc)
- First costs. Need to promote use of full cost or Life-cycle accounting
- Maintenance
- Lack of understanding
- Uncertainty/risk aversion
- Safety issues (trees may block line of sight)
- Intra/Inter department communication
- Lack of flexibility to design for specific cases
- Lack of incentives

2. What are some ideas to overcome barriers?

- Education
- Collect monitoring data from pilot projects
- Include stakeholders in the process early
- Must have political will

- Combine utilities and combine treatments when possible (not have developer and city have two separate treatment facilities to treat stormwater)
- Share costs between developer/city
- Must have flexibility in design (guidelines instead of standards)

3.What incentives does the City offer to promote and encourage the design and construction of sustainable streets and what incentives would be good in the future?

- Vancouver has shifted its incentive program so City pays for 80% sidewalks and 100% sidewalk reconstruction. Developer pays more for streets
- Seattle has a Transfer of Development Rights program, increase in floor area ratio if provide open space or green streets
- Tie incentives to reduction in drainage (reduce or eliminate drainage fees, vault requirements, less drainage infrastructure required)
- Increase use of ROW is green street (allow café in ROW)
- Regulatory streamlining
- Developers agreements

4.What are the areas for further collaboration among the three cities?

- Establish standards for green streets
- Field trips
- Share information from pilot projects
- Establish focal point for sharing information (web based)
- Develop coordinated marketing program
- Working with designers more
- More forums

Session 3: Fostering Innovation (Matt Emlen, Portland, Facilitator)

1. What are you doing to promote innovation?

- Use design charettes, design principles
- It's important to set out the broad goals and objectives.
- Explain the problems facing the city—don't appeal to values or complain
- Top-level support is needed.
- The first step in changing street standards is to allow it (new approaches); then later require it.
- In Vancouver, the community support for country lanes led the way.
- In Portland, the city set a goal to try new approaches. Maintenance crews are used to build test projects. This gets the work done fast, it helps crews understand the projects and crews provide good feedback to engineering.
- Evaluation—get people out to look at projects when it's raining.
- Vancouver has a set of streetscape design standards, and they update these as they learn more.
- Encourage field crews to make design changes.
- Don't throw out the rules, but don't get hung up on them.
- Working with the private sector
  - Give the private sector technical assistance; point them in the right direction
  - Private firms want to get educated on sustainable design
  - Cities can get in trouble advocating for new, untested approaches.
  - It's important to lead by example with major projects like SE False Creek

2. Ideas for further collaboration among the three cities

- Develop a common way to monitor projects

  - Identify 10 common elements that would be used to describe projects
  - Post successes and failures
  - Create a cascadia-wide group to peer review projects
  - Make sure there is long-term monitoring (all three cities have work-order tracking systems that can assist)
- Pose a design challenge that the three cities can work on together:
  - Designing streets in contaminated areas
  - Treating water on steep slopes
  - Determining what works best in clay soils
  - Using water on the surface and surface conveyance through intersections
- Compare notes on Hope VI projects. There are several projects, and they provide examples of technique that can be used in dense urban areas outside the downtown core.
- Learn from the project Herbert Dreiseitl is developing in Portland. www.dreiseitl.de

SUMMARY OF COMMENTS FROM FORUM EVALUATION

- Great networking opportunity; well organized
- Next meeting needs more detail, specific projects, and smaller discussion groups
- Need to create some way to share information on projects and research (website, list serve)

1. What were the most useful aspects of the Forum?
- Great interaction/Sharing of information/meeting peers/networking/Mark's presentation

2. What were the least useful aspects of the Forum and what suggestions would you have to improve the Forum?
- To little face-to-face
- Opening overview to long
- More detail and concrete ideas

3. What information would you like to see come from this Forum (e.g., list of contact information for participants, periodic phone calls with peers, list serve, annual meeting, or joint projects)
- More detailed on specific projects
- Contacts list
- Website
- Field trips in future
- List serve
- Research findings shared
- Development of standard design guidelines

4. Was the format of this Forum (e.g., breakout groups) an effective method to share information and learn about other cities programs?
- Need more face-to-face
- Smaller breakout groups
- Field trips
- Specific case studies
- Group to big

5. What topics would you suggest for future Forums?
- Multiple use of ROW
- Specific pilot projects
- Common criteria for measuring success
- Underground utilities
- Design of sustainable/green streets
- Product examples